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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Abdel-Monem El-Sharkawy

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MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

FONTENOT, NIGEL RAI

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,570	Applicant(s) EL-SHARKAWY ET AL.	
	Examiner NIGEL FONTENOT	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/10/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the application filed July 10, 2006.

Claim Objections

1. Claim 23 is objected to because of the following informalities: There is a "+" at the end of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16, 18 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claim all depend on themselves. For examination purposes, claim 16 will be taken to be dependent on claim 15, claim 18 dependent on claim 17, claim 21 dependent on claim 20, claim 22 dependent on claim 21, and claim 23 dependent on claim 22.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhou et al. (US 6377834).

6. Addressing claims 1-3, Zhou discloses system for generating thermal imagery using an MR scanner comprising: an RF coil (see col. 4 lines 10-30); a tuning means connected to the RF coil (see col. 4 lines 10-30); a pre-amp connected to the tuning means (see (153) in fig. 2); a demodulator connected to the output of the pre-amp (see col. 4 lines 10-30); a digitizer connected to the output of the demodulator (see col. 4 lines 10-30); and a computer connected to the output of the digitizer (see col. 4 lines 10-30), the computer having a computer readable medium encoded with a program for collecting noise signals detected by the RF coil, calculating a variance of the noise signals, and converting the variance to a temperature (see col. 4 lines 10-30 and col. 6 lines 32-67), means for steering a field of view of the RF coil (see col. 3 lines 65-col. 4 lines 37), a main magnet substantially surrounding the RF coil (see fig. 1); and a gradient magnet substantially surrounding the RF coil (see fig. 1).

7. Claims 5-13 and 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishihara et al. (US 6194899).

8. Addressing claims 5-13 and 20-24, Ishihara discloses a method of measuring absolute temperature of a target volume comprising tuning an RF coil, collecting signal data from the RF coil, determining a variance corresponding to the signal data, and converting the variance to an absolute temperature data, storing the absolute

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temperature data, steering a field of view of the RF coil, retrieving the stored absolute temperature data, displaying an image corresponding to the stored temperature data and the field of view of the RF coil, multiplying the variance by a calibration coefficient, setting a bandwidth before collecting data and set, creating a histogram of the signal data, sampling the signal data, and removing outlier data from the signal data by correcting for errors (see col. 3 lines 17-50, col. 4 line 17-col. 5 line 15, col. 8 lines 25-61, process in fig. 2, figs. 3A-B). Ishihara discloses a computer to implement the above method (see (11) in fig. 1)

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Zhou et al. (US 6377834), in view of Lardo et al. (US 2001/0056232).

12. Addressing claim 4, Zhou does not explicitly disclose a network analyzer and a non-magnet variable capacitor. However, Lardo discloses tuning an MR scanner using a network analyzer and a non-magnet variable capacitor to facilitate using a probe used for treatment (see paras 87-90). Zhou and Lardo are concerned with the same field of endeavor, namely MR scanners. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Zhou by incorporating the a network analyzer and a non-magnet variable capacitor to facilitate using a probe used for treatment.

13. Claims 14-19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Zhou et al. (US 6377834), in view of Reeder et al. (US 6188219).

14. Addressing claims 14-19 and 24, Zhou discloses a method of calibrating an MR scanner that measures absolute temperature comprising using phantoms, tuning an RF coil, collecting signal data from the RF coil, determining variances corresponding to the signal data and temperature, setting a bandwidth and sampling the signal data, (see col. 2 lines 11-29, col. 3 lines 22-40, col. 4 lines 59-67, and col. 6 lines 20-48). Zhou discloses using calibration phantoms, but does not explicitly disclose calculating calibration coefficient. However, Reeder discloses using a phantom to calibrate an MR scanner by calculating and saving calibration correction values using signals received from the phantoms by making reference scans and repeating these scans to reduce

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signal artifacts (see abstract, col. 4 lines 3-19, and col. 4 lines 39-61). Zhou and Reeder are concerned with the same field of endeavor, namely MR scanning.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Zhou by incorporating the calibration method and coefficient as disclosed by Reeder to reduce signal artifacts, and since Reeder discloses that the correction factors are based on measurement signals, it would have been obvious to one of ordinary skill in the art to have the calibration coefficient correspond to the bandwidth.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIGEL FONTENOT whose telephone number is (571)270-7032. The examiner can normally be reached on Monday-Friday (7:00a-4:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. F./

Examiner, Art Unit 3768

/Long V Le/

Supervisory Patent Examiner, Art Unit 3768